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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,309	04/21/2004	Yasuo Aotsuka	0649-0956P	4794

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

WHIPKEY, JASON T

ART UNIT	PAPER NUMBER
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2622

NOTIFICATION DATE	DELIVERY MODE
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06/30/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/828,309	Applicant(s) AOTSUKA, YASUO	
	Examiner Jason T. Whipkey	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 28, 2008, has been entered.

Response to Arguments

2. Applicant's arguments filed April 28, 2008, have been fully considered but they are not persuasive.

On page 8 of the remarks, Applicant argues that “the Office Action’s attempt to equate color filters and long red filters to the features in the instant application is in error. ... Aosuka fails to teach or suggest that the imaging apparatus includes ‘white balance correction at a gain corresponding to plurality of light source types’” (emphasis original).

Morimoto discloses this feature on page 6, lines 5-9, of the provided computer translation. Gain calculation section 29 generates a gain value for performing color temperature compensation based on the output of estimate calculation section 28. This scene-specific gain calculation is necessary because a number of different light source types — such as halogen and fluorescent — can illuminate a subject simultaneously (see page 4, lines 14-21).

Applicant also argues that “Aosuka fails to teach or suggest ... the solid state imaging device further detects light in a wavelength range which ‘induces a difference having a predetermined value or more between radiant energy of a first light source and radiant energy of a second light source’” (emphasis original).

The examiner disagrees. Aosuka shows in figures 8 and 9 that the output from the long red (LR) filter induces a difference (i.e., causes a change) having a predetermined value or more (i.e., produces the measurable, predictable values on the Y axis) between radiant energy of a first light source and radiant energy of a second light source (the calculation result varies between any two light sources shown on the X axis).

Specification

3. The amendment to the title is approved and the corresponding objection is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4, and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto (Japanese Patent Publication No. 07-143513) in view of Aotsuka (U.S. Patent Application Publication No. 2003/0058357).

Regarding **claims 1, 6, 7, and 8**, Morimoto discloses a solid-state imaging apparatus (see Drawing 1 in the provided computer translation) comprising:

a solid-state imaging device (image sensor 1 and color separation section 2) having a plurality of pixels that image light originating from a subject, by dividing the light into a plurality of color signals (see page 3, lines 6-10) with a plurality of types of color filters provided with said plurality of pixels (inherently present, since the device captures red, green, and blue image data); and

a signal processor (gain controller 3) that subjects photographed image data output from the solid-state imaging device to white balance correction at a gain corresponding to plurality of light source types (see page 4, lines 1-6, and page 6, lines 5-9),

wherein the solid-state imaging device further comprises a sensor (the pixels inherently included on image sensor 1) that detects light in a wavelength range (inherently performed by the color filters necessary to produce a color image);

wherein the signal processor further comprises: a mixing ratio estimation unit (white balance operation part 4) that determines a mixing ratio between illumination light originating from the first light source and illumination light originating from the second light source (see page 4, lines 14-15), through use of

a detection signal output from the sensor; and a gain computation unit that computes a gain where the white balance correction is to be effected, in accordance with the mixing ratio (see page 6, lines 2-9).

Morimoto is silent with regard to the sensor having a filter different from the plurality of types of color filters.

Aotsuka discloses an image pickup apparatus that distinguishes between light sources (see Figure 3), including:

a sensor (see Figure 3) that has a filter different from said plurality of types of color filters (long red filters, which are used on non-RGB pixels to detect the kind of illuminating light source present; see paragraphs 78-82) and detects light in a wavelength range which induces a difference (i.e., causes a change) having a predetermined value or more (i.e., produces the measurable, predictable values on the Y axis in the plots shown in figures 8 and 9) between radiant energy of a first light source and radiant energy of a second light source (the calculation result varies between any two light sources shown on the X axis; see paragraphs 97-98), the sensor being provided on the surface of the solid-state imaging device (see paragraph 80).

As suggested in paragraphs 96-98, an advantage of including pixels with separate filters is that a variety of light sources can be more easily detected, including variations in different fluorescent lights. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Morimoto's sensor include pixels with a filter different from the plurality of types of color filters, as described by Aotsuka.

Regarding **claim 4**, Morimoto discloses:

the signal processor comprises a light source type determination unit that determines the type of a light source from the photographed image data (see page 5, line 44, through page 6, line 2).

Regarding **claims 9-11**, Morimoto's device inherently includes red, green, and blue filters, since the device captures red, green, and blue image data.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto in view of Aotsuka and Kitajima (U.S. Patent No. 5,808,681).

Claim 2 can be treated like claim 1. However, Morimoto is silent with regard to the mixing ratio and the gain being determined with respect to each of the pixels.

Morimoto discloses an electronic still camera that performs automatic white balancing, wherein:

the mixing ratio (see column 5, lines 24-27) and the gain (see column 5, lines 31-35) are determined with respect to each of the pixels.

As suggested in column 9, lines 8-27, an advantage of calculating a ratio between two light sources and a gain for each pixel is that a more accurate white balance calculation can be produced. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Morimoto's system perform these calculations on a per-pixel basis.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto in view of Aotsuka and Yamada (U.S. Patent Application Publication No. 2002/0012463).

Claim 3 can be treated like claim 1. While Morimoto discloses correcting color using a mixing ratio, he is silent with regard to correcting a color tone by multiplying color difference signals by a color difference matrix and correcting coefficients of the matrix.

Yamada discloses an imaging device (see Figure 1), wherein:

the signal processor comprises: a color tone correction unit (color correcting section 22) for correcting a color tone by multiplying color difference signals determined from the photographed image data by a color difference matrix (see paragraph 39); and

a color difference matrix correction unit (matrix coefficient setting section 20) for correcting coefficients of the color difference matrix (by way of lightness detecting section 20; see paragraph 39).

Combining the device disclosed by Morimoto with the color difference matrices and correcting coefficients disclosed by Yamada would have yielded the predictable result of producing color correction values with fewer system resources. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Morimoto's system use color difference matrices and correcting coefficients, as described by Yamada.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Whipkey, whose telephone number is (571) 272-7321. The examiner can normally be reached Monday through Friday from 9:30 A.M. to 6 P.M. eastern daylight time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye, can be reached at (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason T. Whipkey/
Examiner, Art Unit 2622